CLAIMS

I claim:

1. A method for reading and decoding data from an optical medium, comprising:

reading channel bits from the optical medium;

removing sync codes from the channel bits to derive a plurality of ESM-encoded words;

decoding the ESM-encoded words by an ESM decoder to generate a plurality of recording frames;

rearranging the recording frames to generate an ECC block;

removing parity bytes from the ECC block to generate a plurality of scrambled data frames;

descrambling the scrambled data frames to generate a plurality of encoded data frames;

inverting at least one selected bit of each encoded data frame to generate a plurality of data frames; and

extracting main data from the plurality of data frames.

2. The method of claim 1, wherein inverting at least one selected bit of each encoded data frame to generate the data frames comprises inverting at least one selected bit of a sector number of each encoded data frame.

3. The method of claim 1, wherein inverting at least one selected bit of each encoded data frame to generate the data frames comprises inverting at least one selected bit of a sector information field of each encoded data frame.

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4. The method ~~of~~ of claim 1, wherein inverting at least one selected bit of each encoded data frame to generate the data frames comprises inverting at least one selected bit of a ID Error Detection Code field of each encoded data frame.

5. The method of claim 1, wherein inverting at least one selected bit of each encoded data frame to generate the data frames comprises inverting at least one selected bit of an Error Detection Code field of each encoded data frame.

6. The method of claim 1, wherein inverting at least one selected bit of each encoded data frame to generate the data frames comprises inverting at least one selected bit of a data field of each encoded data frame.

7. The method of claim 1, further comprising performing error checking and correction on the ECC block using the parity bytes prior to descrambling the scrambled data frames.

8. The method of claim 1, wherein reading the channel bits from the optical medium comprises:

deriving NRZI-encoded pulses from the optical medium; and

decoding the NRZI-encoded pulses by an NRZI decoder to generate the channel bits.

9. A method for recording data on an optical medium, comprising:

receiving main data from a data source;

determining a plurality of data frame values in response to the main data;

inverting at least one selected bit in at least one of the data frame values to generate a plurality of encoded data frames;

scrambling the encoded data frames by a feedback shift register to generate scrambled data frames;

generating ECC values in response to the scrambled data frames;

adding the ECC values to the scrambled data frames to generate an ECC block;

rearranging the ECC block to generate a plurality of recording frames;

encoding the recording frames by an eight-to-sixteen modulation (ESM) encoder to generate code words;

adding sync values to the code words to generate a plurality of physical sectors; and

recording the physical sectors on the optical medium.

10. The method of claim 9, further comprising encoding the physical sectors by an NRZI encoder prior to recording the physical sectors on the optical medium.

11. The method of claim 9, wherein inverting at least one selected bit in at least one of the data frame values comprises inverting at least one selected bit of a sector number value.

12. The method of claim 9, wherein inverting at least one selected bit in at least one of the data frame values comprises inverting at least one selected bit of a sector information field.

13. The method of claim 9, wherein inverting at least one selected bit in at least one of the data frame values comprises inverting at least one selected bit of a ID Error Detection Code field.

14. The method of claim 9, wherein inverting at least one selected bit in at least one of the data frame values comprises inverting at least one selected bit of an Error Detection Code field.

15. The method of claim 9, wherein inverting at least one selected bit in at least one of the data frame values comprises inverting at least one selected bit of a data field.

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